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NEWSLETTER OF THE LONDON CHAPTER,
ONTARIO ARCHAEOLOGICAL SOCIETY
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October 1997

97-6

FORENSIC ANTHROPOLOGY AND ARCHAEOLOGY IN SOUTHERN ONTARIO

Kathy Gruspier
Thursday, November 13, 1997
The London Museum of Archaeology

For our November speaker night we are pleased to present Kathy Gruspier, a consultant with the Office of the Chief Coroner of Ontario and a part-time lecturer and PhD candidate at the University of Toronto. Kathy will be speaking about Forensic Anthropology and Archaeology in southern Ontario. The meeting will be held at **THE LONDON MUSEUM OF ARCHAEOLOGY**, 1600 Attawandaron Road (near the corner of Wonderland and Fanshawe Park Road in the northwest of the city) at 8 PM.

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EXECUTIVE REPORT

Bev Morrison, who has been a "most excellent" President for 2 years, has decided to tackle other challenges. So the Chapter is looking for someone, anyone, to fill this exciting, but not time-consuming position. Although candidates for any executive post are welcome, ***we need a new president***. Call Peter Timmins at 472-4454 with your nominations.

SOCIAL REPORT

The annual meeting of the Ontario Archaeological Society was held last weekend at the Novotel North York Hotel. This year the symposium was a joint affair held in conjunction with the Midwest Archaeological Society. The symposium was well attended and the theme, "Taming the Taxonomy: Toward a New Understanding of Great Lakes Archaeology", produced some thought-provoking ideas.

October's speaker was UWO graduate student, Linda Howie-Langs. She provided an interesting talk on mortuary practises in Bruce County during Middleport times. November's speaker will Kathy Gruspier. Her title is "Forensic Anthropology and Archaeology in Southern Ontario". Kathy is a consultant with the Office of the Chief Coroner of Ontario and a part-time lecturer and PhD candidate at the University of Toronto. The Christmas party is in December and the next speaker will be in January.

The City of London has established the London Endowment for Heritage Fund. This fund, which is within London Community Foundation, will provide grants for the preservation of London's architectural, archaeological, cultural landscapes, moveable, and natural heritage resources. Grants will be given to: registered charities (including the City of London and conservation authorities) and individuals in partnership with a registered charity. For more information contact the London Community Foundation, 248 Pall Mall Street, Suite 100, London, Ontario, N6A 5P6, Fax (519) 667-1615.

Christmas is fast approaching and that means party time! The Nelson's did a splendid job hosting the event last year. Who would like the honour this year? Any takers?

EDITORS' REPORT

The article for the September issue of **KEWA** was written in 1991 by former Ministry of Transportation archaeological staff member, Carl Murphy. Call us biassed, but we feel that it was not in the best interests of provincial heritage or provincial economy to close down the Archaeology offices and hire private consultants to do the Ministry's work. This article is a fine example of the type of reporting that was routinely done by Ministry staff.

A HEADWATER CAMP ON HUNSBURGER CREEK

by Carl Murphy

INTRODUCTION

The Hunsburger Creek site (AiHd-83) was found during the 1989 archaeological survey of the Highway 7 & 8 right-of-way by archaeological staff of the Ministry of Transportation, Ontario (Figure 1). Highway 7 & 8 will be widened from two to four lanes between Kitchener and New Hamburg. Proposed construction will affect another 40 metres of undisturbed woodlot or fallow fields. To protect archaeological sites from future disturbance, the survey included all remaining undeveloped land on the highway corridor.

The Hunsburger Creek site is situated on a small wooded knoll overlooking Hunsburger Creek and an unnamed marshy tributary. The creek is about a metre wide below the site and is fed by a series of springs a few hundred metres to the north, then drains southwesterly to join the Nith River of the Grand River system. The site is near the western edge of the Waterloo Moraine and immediately

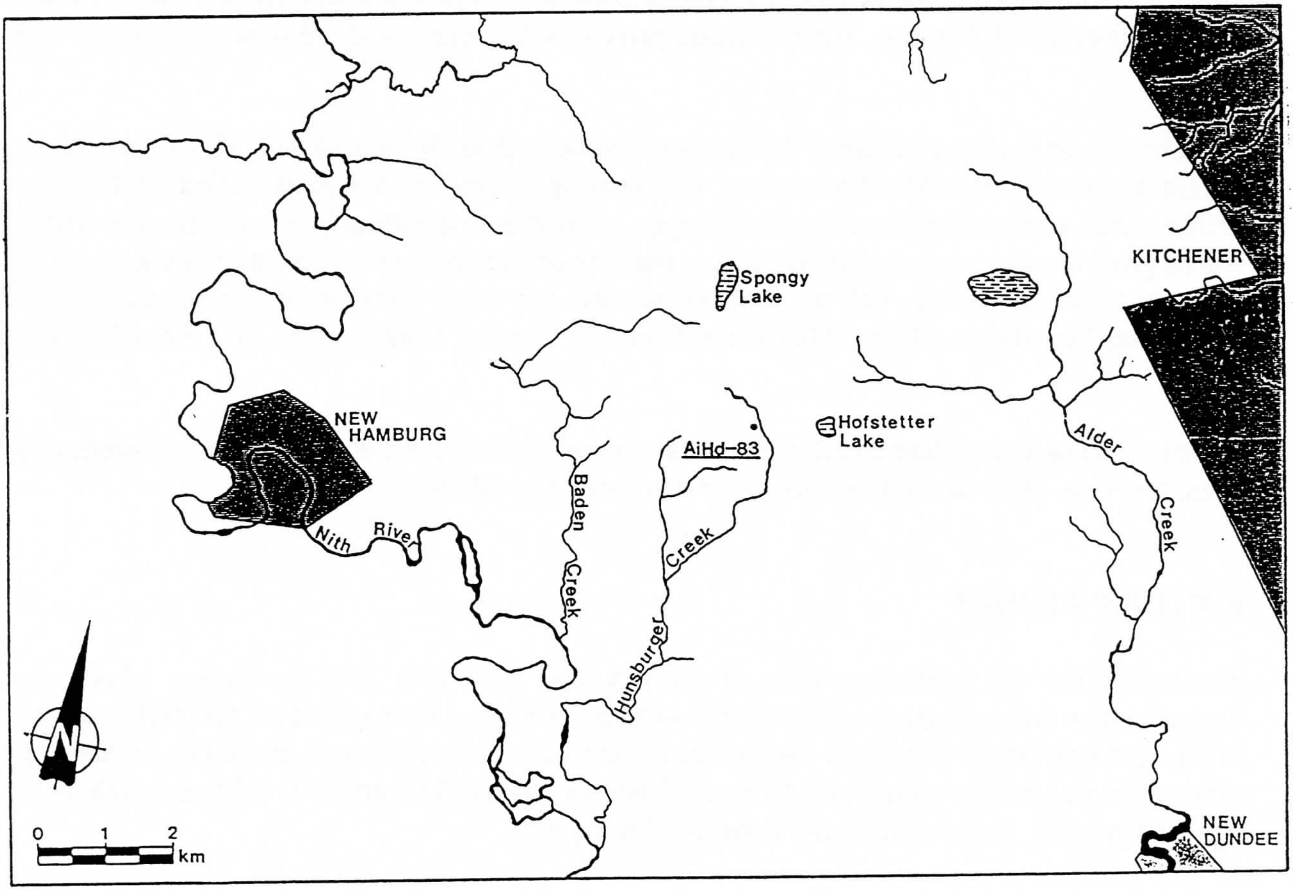

Figure 1. Location of the Hunsburger Creek Site

south of a series of prominent kame morraines known as the Baden Hills (MacDonald 1988:6-12). The Waterloo fine sandy loam soils of the site area (Presant and Wicklund 1971), support mature maple and beech trees with secondary associates consisting of hemlock, white pine, and white ash.

The archaeological test pit survey recovered an Onondaga chert flake within the proposed construction limits on a narrow terrace on the east side of the knoll. Additional chert flakes were found near the southern edge of the right-of-way, beyond the limits of construction and logging activities. Mitigation within the construction limits was undertaken in May of 1990, when a total of 127 one-metre squares and seven 0.5 metre squares were excavated. A single cultural feature and an artifact assemblage consisting entirely of chipped lithic material was recovered. Based on the wide range of projectile point types found, several prehistoric occupations are represented. Three components are intermixed near the centre of the excavated area. These include two Early Archaic Nettling points, two early Middle Archaic Stanley/Neville Stemmed points, and two or possibly three late Middle Woodland Jack's Reef Corner-Notched points. Beyond the central concentration, a Small Point Archaic biface was found to the northeast; a Middle Woodland Saugeen point to the southeast, and a late Middle or early Late Woodland triangular biface base to the west. Most of these components are also represented by small, discrete deposits of thermally altered chert.

METHOD OF EXCAVATION

Prior to test excavations on the site, a site datum was established near the centre of the knoll, and a five by five metre grid was laid over the area within the construction limits. Grid coordinates are based on one metre square units, with the northwestern corner designating provenience according to the metric distance from the north-south and east-west base lines. Excavation began by screening the topsoil from one metre squares through 6.0 mm mesh screens at five metre intervals to identify artifact concentrations. An artifact concentration was discovered in test square 20N5E, and subsequent excavations expanded in contiguous one metre squares until artifact frequencies decreased to below about ten flakes per square on the south, east and west sides. Excavations to the north were interrupted by grading disturbance from previous road construction. Seven 0.5 metre squares were also excavated to help define the edges of the artifact concentration within the limits of construction.

Soil conditions on the site varied from a very light sand to sand mixed with coarse gravel and a few larger glacial erratics. The dark topsoil layer ranged between 10-15 cm thick, although waste flakes were sometimes found to a depth of 30 cm, in the apparently undisturbed yellow-tan subsoil. This phenomena is likely due to the age of some of the components and natural soil movement, rather than the presence of shallow pit deposits. The majority of material excavated from the site was found at the topsoil-subsoil interface.

FEATURES

A small feature was found near the southwestern edge of the excavated area (Figure 2). The circular ash deposit was placed partially on the edge of a large schist glacial erratic buried 5 cm below the surface in squares 20N4E and 21N4E. The deposit also contained an Onondaga chert flake and a small amount of charred wood. Three species of charred wood were recovered from a 20.5 litre flotation sample; and include sugar maple, white pine, and an unidentified ring porous hardwood. This evidence suggests the feature is the remains of a hearth from one of the more recent components at the site, although no thermally altered chert was recovered. Identifiable fire cracked rock was not found in any square, but several deposits of burnt chert on the site may also represent former hearth areas (Figure 3).

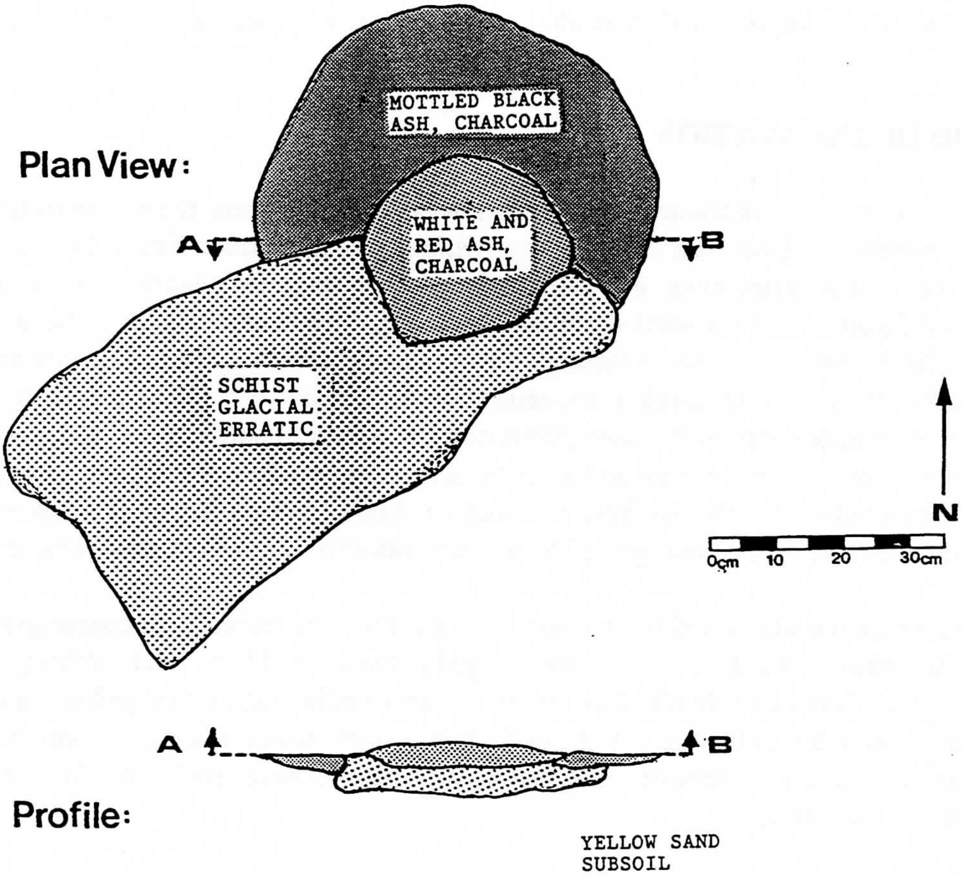

Figure 2. Plan and Profile of Feature 1

ARTIFACT ANALYSIS

The artifact assemblage consists primarily of bifacial retouch flakes, projectile points and fragments, and expedient flake tools (Table 1). The total inventory of cultural material recovered from Hunsburger Creek is provided in Appendix A of the original report.

Table 1. Artifact Class Frequencies

Class	f	% of tools
Projectile points	10	22.2
Point fragments	11	24.4
Bifaces	1	2.2
Scrapers	1	2.2
Retouched flakes	3	6.7
Utilized flakes	14	31.1
Cores	5	11.1
Debitage	1077	
Totals	1122	99.7

Cores

Five Onondaga chert core fragments were recovered. The largest example (28N11E) is a rotated core on a poor quality chert cobble with nodular cortex over half the remaining surface. The other cores are all quite small and were probably discarded when they became too irregular or too thin for further reduction. Three examples from the site display heavily battered edges and bi-directional flake scars typical of the bipolar reduction technique.

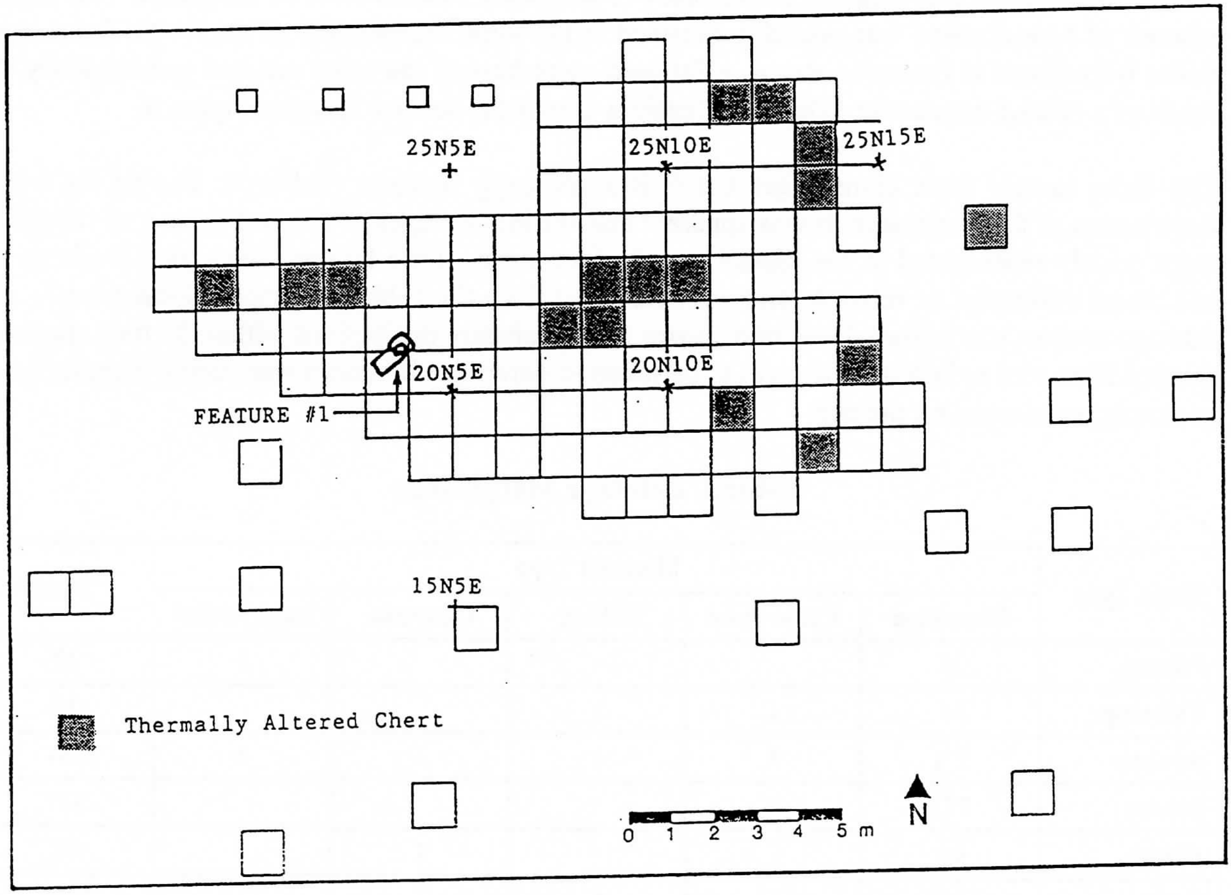

Figure 3. Location of Feature 1 and the Distribution of Thermally Altered Chert

Table 2. Core Descriptions

Provenience	Type	Metrics (mm)			Weight (gm)
		Length	Width	Thickness	
24N0W	Rotated	29.2	22.5	17.9	8.83
26N8E	Bipolar	31.8	22.1	7.6	5.66
26N8E	Bipolar	22.8	19.6	6.6	2.92
25N9E	Bipolar	29.0	18.0	8.4	3.30
28N11E	Rotated	44.5	29.8	12.4	17.98

Debitage

A total of 1077 fragments of chipped lithic debitage was recovered, and 98.2% of this sample is Onondaga chert (Table 3). The quality of the Onondaga chert is generally quite good, suggesting that some of the material was obtained from primary or secondary sources close to Lake Erie. The limited amount of Selkirk chert was probably obtained in the same manner. All of the Kettle Point chert flakes were found in the same area as a Saugeen point base of the same material and are likely the result of a related occupation. Debitage densities across the site are found in Figure 4.

The flake sample from Hunsburger Creek is surprisingly uniform (Table 3). During the initial examination of the assemblage, it was apparent that the initial stages of chipped lithic tool reduction were poorly represented in the assemblage. In fact, most of the largest flakes have evidence of additional utilization or retouch, and were removed from the debitage sample. Subsequently, the debitage analysis was broken down into classes that emphasize distinctions within the final stages of chipped lithic tool reduction. This was undertaken to determine if bifaces were being manufactured or simply maintained on the site.

Table 3. Debitage Morphology

Flake Type	Material Type					Total
	Onondaga	Kettle Point	Selkirk	Quartzite	Unidentified	
Primary	16				1	17
Thinning	33	1	1			35
Retouch	571	5	4		4	584
Broken	377					377
Shatter	61			1	2	64
Totals	1058	6	5	1	7	1077

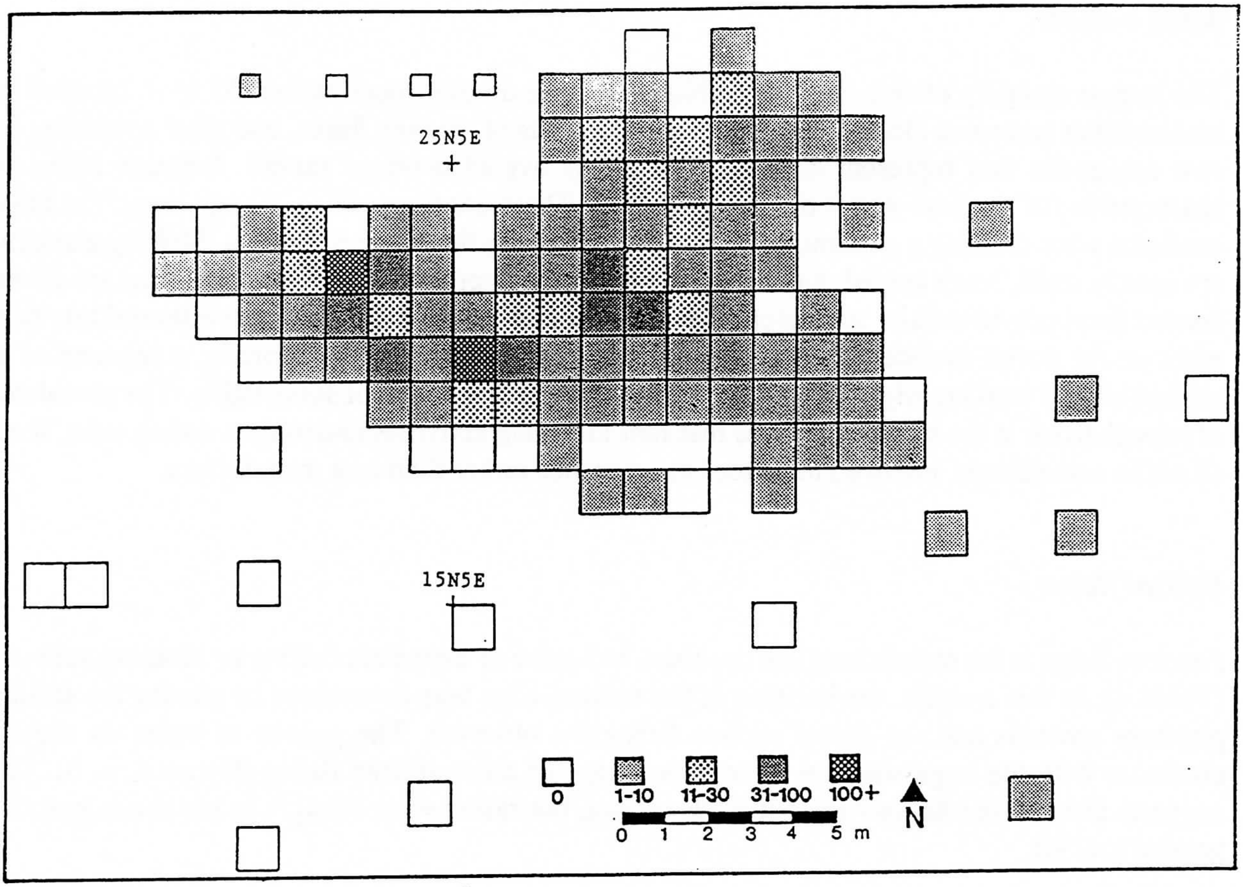

Figure 4. Distribution of Lithic Debitage

The initial stages of chipped lithic tool reduction are included in the category of primary flakes. These are flakes struck directly from cores or flakes removed while shaping or trimming the flat edges of a rough quarry blank. The angle of the striking platform is generally near 90 degrees to the dorsal surface, and the platforms are either covered with cortex or consist of large plain surfaces. The dorsal surface of primary flakes may also be completely or partially covered with cortex. When present, dorsal ridges are often pronounced and irregular. Ten of the primary flakes have cortex on the dorsal surface, while the remaining examples are plain. With a total of only 17 unaltered flakes in this broadly based category (1.6%), primary tool reduction was certainly not common during any occupation within the area excavated. This is also confirmed by the small amount of shattered lithic debitage in the sample (5.6%).

The category of thinning flakes is also poorly represented on the site (3.2%). Thinning flakes are produced when trimming and thinning a quarry blank or rough biface into a finished preform. These flakes are often long (> 20mm), thin, and may display a large, faceted striking platform with an acute angle. Most flakes have one or more flake scars on the dorsal surface and dorsal ridges are usually readily evident, but not often pronounced (< 5.0 mm thick). Although thinning flakes grade into retouch flakes, distinctions can be made based on size, striking platform, and the condition of the dorsal surface.

The largest category of chipped lithic debitage is made up of retouch flakes (53.0%). Most of the broken flakes recovered (35.0%) are likely the distal ends of retouch flakes, and after combining the two categories they represent close to 90% of the overall debitage sample. Retouch flakes are characteristic of the final stages of lithic reduction. These are the small (< 20 mm long), flat flakes produced when finishing a preform, or resharpening and recycling finished bifaces. Striking platforms are usually small, acute angled, and often only a few millimetres wide. Larger platforms are always faceted from previous flake scars along the bifacial edge. Larger flakes may have several low flake scars on the dorsal surface, while smaller flakes are often smooth. Occasionally, a segment of an original bifacial working edge may be retained on the proximal edge of some flakes. The prevalence of retouch flakes in the sample indicates that flint knapping activities undertaken during most, if not all of the occupations, involved lithic tool maintenance rather than tool manufacture.

Utilized flakes

Fourteen flakes in the sample have fine use-wear, indicative of expedient cutting or scraping activities (Table 4). In this analysis, the location of the utilized edge was determined by placing the striking platform upwards and the dorsal surface facing the observer. The paucity of cores on the site contrasts with the large size and rectangular shape of most utilized flakes (Figure 6, n, o). This suggests that utilized flakes were not made on site, but rather were brought to the site as part of a general tool kit.

Projectile Points

Ten analyzable projectile points and eleven additional fragments were recovered. All but two of these were manufactured from Onondaga chert. Morphological variations suggest that at least five temporal stages are represented by the more complete points, and several more unknown components may be inferred by a number of distinctive, but incomplete, lateral or basal point fragments. Metrical data for the more complete points is provided in Table 5, and brief descriptions of the point sample are provided below.

Nettling The earliest identifiable occupation of the site is represented by two Early Archaic Kirk Corner-Notched points (C. Ellis pers comm. 1990; Ellis et al. 1990; Justice 1987). In southwestern Ontario, these are often referred to as Nettling points (Fox 1980). The only earlier material found on the Highway 7 & 8 right-of-way was a late Paleo-Indian Hi Lo point surface collected about two kilometres west of Hunsburger Creek (Murphy 1990:20).

A lateral edge of a large serrated Nettling point was recovered from 23N6E (Figure 6, a). It was made from a granular Onondaga chert and the nearly straight blade edge has four serrations per centimetre. The flaking pattern appears to be collateral, and the deepest serration is 2.0 mm.

Table 4. Utilized Flakes

Provenience	Flake	Shape	Flake Metrics (mm)			Utilized Edge (mm)			Wear Form
			L	W	T	Location	L	Shape	
23N01W	Primary	Rectangular	30.7+	23.4	6.1	Right Dorsal Left Dorsal	26.7 25.5	Straight Straight	Unifacial Unifacial
22N02E	Thinning	Expanding-Contracting	28.9	24.4	5.4	Left Dorsal	12.7	Concave	Unifacial
22N03E	Primary	Expanding	22.2	27.7	6.3	Right Dorsal	17.2	Convex	Unifacial
23N05E	Thinning	Irregular	27.2+	20.8	3.5	Left Dorsal	23.2	Concave/ Convex	Unifacial
21N06E	Thinning	Expanding-Contracting	31.0	23.6	4.1	Right Dorsal	11.3	Concave	Unifacial
24N08E	Thinning	Rectangular	27.4+	23.9	3.2	Right Dorsal	22.2	Straight	Unifacial
27N09E	Thinning	Expanding	31.6	35.2	4.7	Right Dorsal	18.0	Concave	Unifacial
25N10E	Primary	Expanding	52.5	24.6	6.8	Distal Dorsal Lateral Ventral Right Dorsal	12.3 41.7 32.5	Convex Concave Concave	Unifacial Unifacial Unifacial
26N10E	Thinning	Expanding	32.0	18.4	3.3	Right Dorsal	21.2	Concave	Unifacial
26N12E	Primary	Rectangular	56.7	47.5	12.2	Lateral Right Dorsal	45.5 25.3	Straight Straight	Bifacial Unifacial
25N13E	Thinning	Contracting	41.9	18.8	8.8	Distal Dorsal	11.1	Irregular	Unifacial
26N13E	Thinning	Rectangular	45.5	25.9	6.1	Right	23.8	Concave	Bifacial
20N14E	Primary	Contracting	26.0	18.4	7.4	Lateral Dorsal	23.2	Concave/ Convex	Unifacial
20N14E	Thinning	Contracting	24.1+	22.2	2.7	Lateral Dorsal	16.2 8.0	Straight Straight	Bifacial Bifacial

An unserrated, nearly complete Nettling point was found in square 23N11E (Figure 6, b). Contrary to the first example, this point is made on a high quality Onondaga chert. The blade has fine, collateral retouch on both faces, incurvate lateral edges, and both lateral barbs have blunted edges. The cross section is plano-covex, and the convex face has one large flake removed to thin the base. The basal edge is heavily ground and features a long, narrow, unworked surface that may be a remnant of the striking platform.

Nettling points date between 9700 and 8900 B.P. in the southeastern United States and examples from Ontario are thought to represent a similar temporal range (Ellis et al. 1990: 73). A point similar to the nearly complete example above (radiocarbon dated at 9640 +/- 120 B.P.) was recovered from the Shelton Mastodon site in southeastern Michigan (Shoshani et al. 1990:4).

Table 5. Projectile Points

Provenience	Type	Total Length	Blade Length	Stem Length	Total Width	Base Width	Inter-notch
23N05E	Nettling	51.0*	40.0*	8.4	27.5	19.4	15.0
22N08E	Stanley/Neville	42.2	33.3	9.0	25.0	18.8	15.4
22N09E	Stanley/Neville	37.8	27.7	8.8	28.6	16.6	14.1
26N12E2	Small Point Archaic	38.8	33.4	6.6	20.5	12.1	10.2
21N11E	Saugeen			14.0		23.7	16.9
23N05E	Jack's Reef	50.0	41.3	10.9	31.78	18.4	13.4
26N08E	Jack's Reef	34.1	25.1	10.0	36.0*	22.1	15.3
23N10E	Jack's Reef	28.3	21.3	9.1	23.0*	16.6	12.7
* estimated measurement for nearly complete element							

Stanley/Neville Stemmed Two points recovered date to the period immediately following the bifurcated base series of projectile points in Ontario. They also retain a number of morphological similarities to the earlier point style, including the tendency toward a triangular shaped blade and slightly expanding stem (Ellis et al. 1990:81).

The point from 22N9E has a slightly flared stem and a shallow, concave base. The side-notches are ground but the base is not ground (Figure 6, c). The flaking pattern on this point tends to be random, but for both examples recovered, finishing retouch on the blade faces does not cross the mid-line of the blade. The Stanley/Neville point from 22N8E, is finely made with downsloping collateral flaking on both blade faces (Figure 6, d). The basal and lateral edges of the haft element are fairly heavily ground. The stem is more side-notched than the first example and the basal edge is nearly straight. On both points, the bases are thinned by the removal of short, narrow flakes. Both points are made from good quality, but distinct, Onondaga cherts. Maximum thickness for each example is within the blade-stem interface.

These early Middle Archaic bifaces date ca. 7000 to 6500 B.P. (Ellis et al. 1990: 81). A third Stanley/Neville Stemmed point was surface collected from a ploughed area of the Highway 7 & 8 right-of-way, two kilometers east of the site (Murphy 1990:15).

Crawford Knoll The complete corner-notched point recovered from square 26N12E (Figure 6, e) is a serrated example of a Small Point Late Archaic Crawford Knoll point (Kenyon 1980; Ellis et al. 1990:107). The slightly excurvate blade edges are finely serrated with five serrations per centimetre. The cross-section is plano-convex and the point is minimally worked on the ventral face. The convex basal edge is lightly ground, and maximum thickness is near the centre of the blade.

A smaller, but similar, unserrated, Crawford Knoll point was recovered from an isolated survey test pit 500 metres east of the site (Murphy 1990:16). This point and the one from the site are made from a granular Onondaga chert. The Small Point horizon dates to ca. 3300 to 2900 B.P., and represents the terminal Archaic stage in southwestern Ontario (Ellis et al. 1990:107).

Saugeen A base and shoulder segment of an expanding stemmed Saugeen biface was recovered from square 21N11E (Figure 6, f). This is the single example of a tool manufactured from Kettle Point chert, and was found in the same general area as most of the Kettle Point debitage (Appendix A). The base shows no evidence of grinding and the crude flaking pattern is distinctive of this type. Saugeen points are the utilitarian biface of the Middle Woodland period and date between 2500 and 1500 B.P. (Kenyon 1979).

Late Middle Woodland Points Two nearly complete points are similar to the late Middle Woodland Jack's Reef Corner-Notched type. The medium sized, broad bladed example (26N8E; Figure 6, h), displays classic Jack's Reef Corner-Notched characteristics (Ritchie 1969:228; Justice 1987:217). These include a lightly ground, straight base; deep, narrow corner notches; sharp, barbed shoulders;, and a thin, minimally flaked blade. The smaller point from 23N10E is also representative of the Jacks' Reef cluster, but one of the lateral edges is bevelled, suggesting that it may have been reworked from a larger point (Figure 6, i). The base of this point is also lightly ground. Maximum thickness for each of these points is within the blade-stem interface, and in cross-section both points appear to be nearly biconvex.

Miscellaneous Points A triangular base fragment of a point preform or large triangular point was recovered from 23N0W (Figure 6, j). The base is straight, 24.5 mm wide, and maximum thickness is 6.2 mm near the middle of the blade. The curvature on the longest surviving lateral edge suggests the original shape was pentagonal which could also place this example within a Jack's Reef assemblage (Justice 1987:215), or possibly a more recent occupation.

A large point from 23N5E (Figure 6, g), has a long barbed shoulder, squared lateral base edges, and partially flaked surfaces similar to the Jack's Reef type. However, it is thicker with a narrow, unground base, a twisted blade, and has more thoroughly flaked surfaces than the classic type.

Point Fragments Eleven point fragments are represented in the sample and except for a point tip from 22N6E, the raw material for all examples is Onondaga chert. There are four base fragments in the sample: one (22N9E) is nearly identical in size and manufacture to the broad bladed Jack's Reef point discussed above and measures 23.2 x 7.0 mm in width and thickness. The internotch width is 16.4 mm, but there is no evidence of intentional grinding on the basal edge. A second base fragment

(22N8E) is narrow and thick (17.0 x 6.4 mm, internotch 13.0 mm), and has a convex basal edge that is partially unfinished. These are classic characteristics of Lamoka points defined by Ritchie for similar examples reported in western New York state (1969:50), and for southwestern Ontario (Ramsden 1990:31; Lennox 1990). A concave base fragment from 26N13E is burned, and a slightly convex base fragment from 23N11E (19.1 mm wide) is lightly ground.

Four probable finished biface or projectile point blade fragments were also recovered. One (23N8E) is a large, lower midsection (38.8 mm x 7.0 mm), with alternately bevelled lateral edges. An attempt at recycling this piece left negative flake scars on both the broken proximal and distal edges. A lateral edge (23N7E) retains a long, thin and sharp, barbed shoulder similar to the broad bladed Jack's Reef point from 26N8E. There are three more lateral edge fragments from 25N11E, 23N8E, and 23N1E.

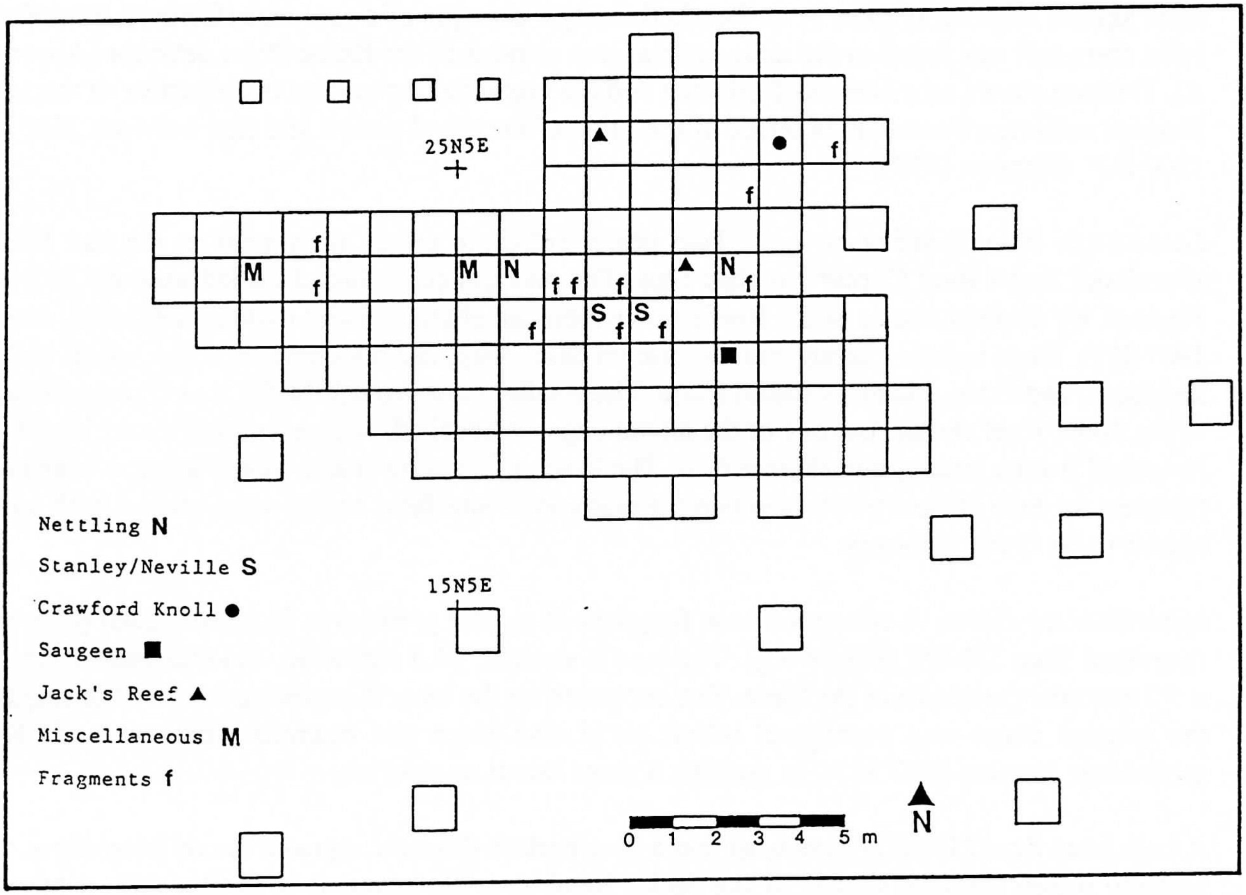

Figure 5. Distribution of Projectile Points and Point Fragments

A small fragment of a point tip was recovered from square 24N1E. A well made, narrow tip fragment from 22N6E is manufactured from a white and tan banded chert. The chert has seven distinct alternating bands, and the darker tan bands have large clusters of calcite inclusions. Banding with variable calcite inclusions is a characteristic of Norwood chert from the northeastern shore of Lake Michigan. Other than Hunsburger Creek, Norwood chert is most commonly reported from historic

Petun Iroquois sites near Collingwood on Georgian Bay (Fox 1990:3). This point tip measures 10 mm wide and 3.3 mm thick at a length of 15.2 mm. These measurements are within the range of the small late prehistoric or early historic triangular points, and could represent another brief occupation of the site.

Bifaces Two biface fragments from 23N7E, 24N7E, and a bifacial retouch flake from 18N10E, were reconstructed to form an intact Onondaga chert biface (Figure 6, k). Metrics are 57.2 x 35.7 x 11.4 mm, and the weight is 20.25 gms. The proximal edge, including the striking platform, is heavily ground or worn on the bifacial retouch flake from 18N10E, and the flake was apparently removed to thin one of the lower lateral edges. The freshly exposed edge shows no sign of additional retouch or wear and the biface may have broke immediately, or snapped into two pieces soon after in the area of 23N7E or 24N7E.

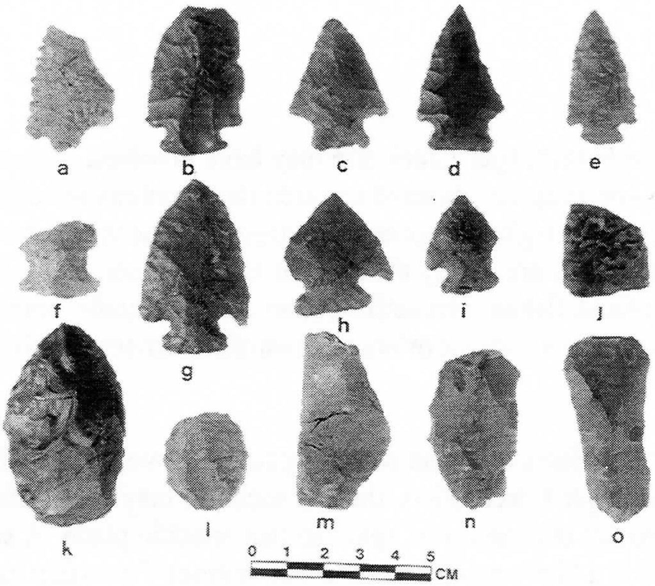

Figure 6. Lithic Tools

Scrapers

A small, circular, unifacial flake scraper of Onondaga chert was recovered from 23N2E (Figure 6, l). Steep (3.0 mm), unifacial retouch was applied to nearly half of the dorsal surface on the distal end of a thinning flake. Measurements are 25.2 x 28.5 x 3.9. mm, and the scraper weighs 2.43 gms.

Retouched Flakes

A large primary flake was modified by fine bifacial retouch (Figure 6, m). The flake is expanding-contracting in shape and measures 49.7 x 25.9 x 8.2 mm. The right dorsal surface has been retouched to thin the edge. The left lateral edge also has discontinuous bifacial use wear.

Two flakes have edges modified into sharp points. A primary flake from 23N2E is triangular in shape and both distal corners were strengthened and sharpened by fine retouch. The flake shape is expanding and measurements are 19.3 x 32.6 x 6.8 mm. A biface thinning flake from 26N12E measures 26.3 x 23.3 x 4.4 mm, and is rectangular in shape. A point was formed by fine unifacial retouch at the centre of the distal, dorsal edge.

The final artifact to be described is a large, roughly cone shaped chert cobble with the pointed end crudely shaped by bifacial thinning to function as a drill bit or possibly a short cutting edge. The object measures 42.2 x 37.7 x 19.0 mm, and the worked edge is 16.4 mm in length.

DISCUSSION

Activities undertaken at the Hunsburger Creek site may have involved some tool manufacture, but the greatest amount of flint knapping was directed towards the maintenance of bifacial tools. Rotated or bipolar core reduction is only marginally represented, ground stone is absent, and most other types of bifacial or unifacial lithic tools are nearly absent. An artifact assemblage consisting primarily of bifacial retouch flakes, utilized flakes, projectile points and projectile point fragments reflects a pattern of behaviour that involved a tool kit oriented towards short-term activities with an emphasis on mobility.

The range and frequency of artifacts from the site bring to light two possible interpretations for the patterns observed at Hunsburger Creek. First, the site location may have offered certain resources that attracted prehistoric peoples over and over again to that specific place. A small knoll at the apex of two secondary drainages is a likely camp location, but Wilmot Township has many similar areas. Below the site, the spring fed creek may have remained open year-round and provided a ready source of drinking water. Hofstetter Lake is only one kilometre to the east, and the occupants of Hunsburger Creek may have wished to be close, but not too close to the lake. Each of these explanations could account for the presence of multi-component sites, but not necessarily a site with such an homogenous artifact sample.

The second explanation is one that involves long-term prehistoric land use patterns. When found in a ploughed field, sites similar to Hunsburger Creek are often referred to as a 'lithic scatter'. Lithic scatters were presumably left by individuals, small groups of hunters, or other short term task groups who were preparing equipment, processing plants or animals, or camping overnight. Hunsburger Creek, however, is a special example of this kind of site. The number of components and artifact class frequencies on the site suggest that the Hunsburger Creek site is a 'headwater camp': that is one of, or, the uppermost location on a drainage selected as a suitable camping area. It is where small groups or hunting parties stopped, camped, then returned down the drainage or moved overland to another drainage system. Based on the number of identified occupations at Hunsburger Creek, headwater camps like Hunsburger Creek may have been an integral part of prehistoric adaptive strategies. The implications of this line of inquiry involve the identification and verification of seasonal settlement and subsistence strategies, territorial land use patterns, and prehistoric population densities - all of which are beyond the scope of this present report.

The fact that only a limited number of diagnostic projectile points are represented for each identifiable occupation also suggests a settlement and subsistence strategy practised at the site that shows little change though the climate and forest fluctuated. The spruce parkland forests that initially colonized the area following the retreat of Wisconsin glaciation, ca. 12,000 B.P., were replaced by a more mixed forest dominated by pines by about 9,500 B.P. (Mott and Farley-Gill 1978:1108). The pines gave way to more deciduous elements and hemlock became the major conifer after about 7,200 B.P. Hemlock gradually declined and after 6,400 B.P., southwestern Ontario forests rapidly gained modern characteristics (Mott and Farley-Gill 1978).

The occupations represented by the Nettling and Stanley/Neville Stemmed bifaces at Hunsburger Creek extend over the transition period from the pine dominated forest to one with more modern vegetation patterns. The availability of faunal species to exploit also changed through the Early Archaic as animals adapted to colder or more open environments gave way to typically northern Carolinian and southern Canadian forest species. For example, the Early Archaic levels at the Shelton bog site in southeastern Michigan included "muskrat, eastern cottontail, white-tailed deer, woodland caribou, elk, and moose" (Shoshani et al. 1990:14). All four of the larger ungulates noted above were likely available in southwestern Ontario during the Early Archaic occupations at Hunsburger Creek. However, by the Middle Archaic with the establishment of more modern vegetation patterns, hunting strategies were likely forced to focus on white-tailed deer. Limited numbers of elk may have remained in the area even until late in the prehistoric period, but elk were never common in the mature forests of southwestern Ontario (Kurten and Anderson 1980:318).

The actual use of a headwater camp could have been simply a seasonal occurrence, or may have reflected a more wide ranging foraging strategy based on need. Both forms of use could also represent an expression of ownership or occupancy much like a 'use it or lose it' situation. The Hunsburger Creek site may simply be one of dozens of similar sites scattered throughout the creeks and swamps of Wilmot Township. A total of twelve prehistoric archaeological sites were identified along the narrow Highway 7 & 8 transportation corridor during the 1989 and 1990 survey (Murphy 1990), while a survey that actually followed one of the small drainages might find dozens if not hundreds of sites. This suggests that the area was repeatedly utilized, perhaps on an annual basis. Seasonal exploitative strategies became entrenched in the southeastern United States by the Early Archaic stage, with peoples following a predictable pattern along drainage basins over established territories. It is not known when or if territorial occupations may have begun by the Archaic stage in southwestern Ontario, or even if they lasted until hunting and gathering life-styles were largely abandoned. Based on mortuary patterns, band territories are at least suspected by the Middle

Woodland stage (Spence and Fox 1986), although data concerning year round seasonal patterning is still sparse.

Acceptable data concerning seasonality is found on a number of Late Archaic sites, but these all appear to relate to warm period occupations. Lakeshore oriented sites such as Crawford Knoll (Kenyon 1980), Rocky Ridge (Ramsden 1976), Knechtel 1 (Wright 1972) etc. have contributed ample evidence for seasonal occupation during the warmer months of the year. People occupying these sites exploited readily available aquatic and terrestrial fauna, and most importantly, their discarded artifacts reflect a wide range of activities. On the other hand, most inland late Archaic sites do not have preserved flora or fauna, but they consistently produce a more limited range of tools, and these assemblages are often dominated by projectile points. Based on the percentage increase of projectile points on interior sites, hunting is usually thought to be the primary subsistence oriented activity. Owing to the relatively large amount of lithic wastage and compact size of most excavated inland Late Archaic sites, they are most often interpreted as winter base camps. Apparently, the Hunsburger Creek site is the lowest common denominator of the winter seasonal pattern, that is, a small outlying camp near the edges of a winter hunting area.

While the question of fixed or formalized territorial ownership during the Archaic stage is far from answered, a site like Hunsburger Creek certainly seems to point in that direction, particularly when hunting large game with one or just a few hunters is most effectively accomplished by the ambush technique (Shoshani et al. 1990), and familiarity with local animal movements is one of the most important elements of ambush hunting. Small, briefly occupied campsites near the headwaters of small streams suggest a familiarity with the landscape that comes from regular or traditional use of a hunting territory. Evidence for this pattern is found in the number and character of prehistoric occupations at the Hunsburger Creek site, and along the Highway 7 & 8 corridor in general.

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